# MOTORCYCLE SEASON

# *Motorcycle Facts:*

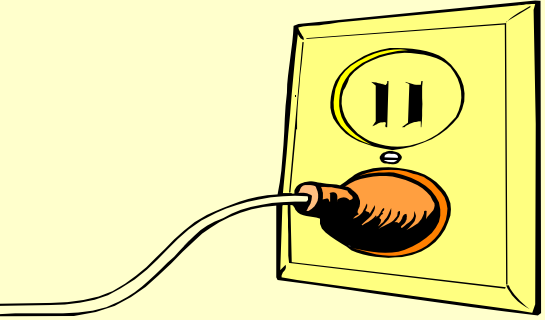
**• Since 1998 over 4000 motorcyclists died and approximately 70,000 were injured in highway crashes in the United States.**
**• Per mile traveled, a motorcyclist is approximately 16 times more likely to die in a crash than an automobile occupant. And 3x (times) as likely to be injured.**
**• Head injury is a leading cause of death in motorcycle crashes.**
**• From 1998-2003, 46% of fatally injured motorcycle drivers were not wearing helmets at the time of the crash.**
**• NHTSA estimates that motorcycle helmets reduce the likelihood of a fatality by 29% in a crash.**
**• From 1998-2003, 41% of all motorcycle drivers involved in fatal crashes were speeding.**
**• Nearly one out of five motorcycle drivers (18%) involved in fatal crashes was operating with an invalid license at the time of the collision.**
**• Motorcycle drivers involved in fatal crashes had higher intoxication rates than any other type of motor vehicle driver at 31%.**
**• In 1998, 500 motorcyclists lives were saved due to helmet usage; 307 could have been saved.**

# *Motorcycle Facts:*

- **Helmet use among fatally injured motorcyclists below 50 percent**
- **More motorcyclist fatalities are occurring on rural roads**
- **High blood alcohol levels are a major problem among motorcycle operators**
- **Half of the fatalities are related to negotiating a curve prior to the crash**
- **Over 80 percent of the fatalities occur off roadway**
- **Undivided roadways account for a majority of the fatalities**
- **Almost two thirds of the fatalities were associated with speeding as an operator contributing factor in the crash**
- **Almost 60 percent of motorcyclist fatalities occur at night**
- **Collision with a fixed object is a significant factor in over half of the fatalities**
- **Braking and steering maneuvers possibly contribute for almost 25 percent of the fatalities**
- **More riders age 40 and over are getting killed**
- **Almost one third of the fatally injured operators did not have a proper license**

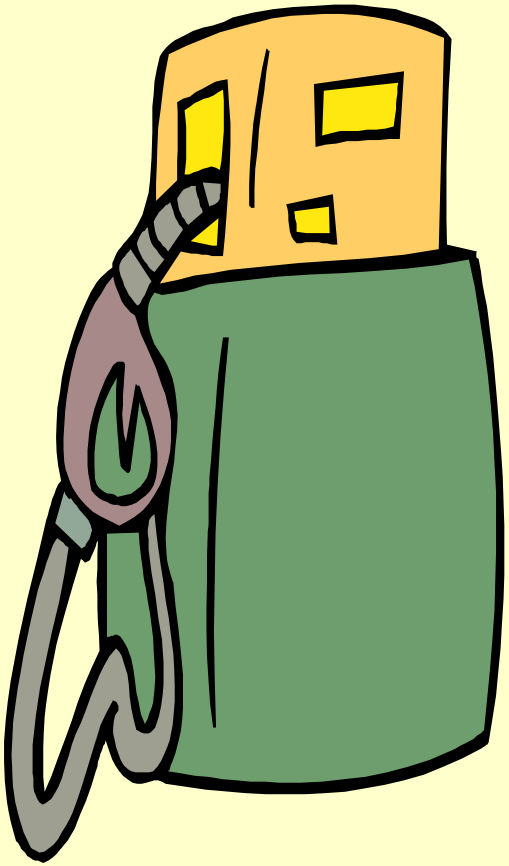
# *Care and Maintenance Includes:*

- **Electrical**
- **Engine Fluids**
- **Brakes**
- **Tires & Wheels**
- **Engine & Transmissio**
- **Frame & Suspension**



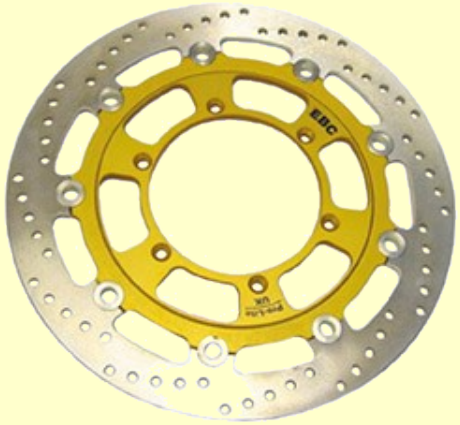
# ELECTRICAL

- **Check head light high/low beam, tail/brake light, turn signals, instrument and driving lights.**
- **Test Kill button/switch and inspect overall wiring for chafe. Use wire ties to secure loose wires. A shot of WD-40 will keep switches & locks healthy.**
- **Check battery levels and clean terminals. Baking soda & water will clean corrosion from the post (Don't get it inside the battery!), a little petrolatum or grease helps prevent future corrosion.**
- **Inspect starter connections & mounting bolts. Check shaft for excessive wear if noisy.**
- **If your bike has a fuse box, check 'em and get spares or Test Breakers. Fire is bad.**

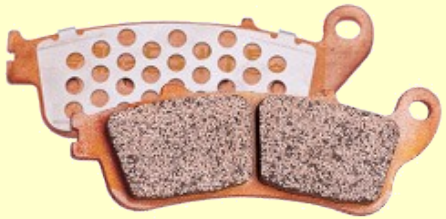


# Engine Fluids

- **Check levels. If engine/trans. oil is very dark or black, smells burnt, change oil & filter.**
- **Inspect fuel filter & screens for crud and check lines for chafe and dry rot.**
- **Water cooled Engines: Check coolant/anti-freeze level, and check flow/pump/hoses.**



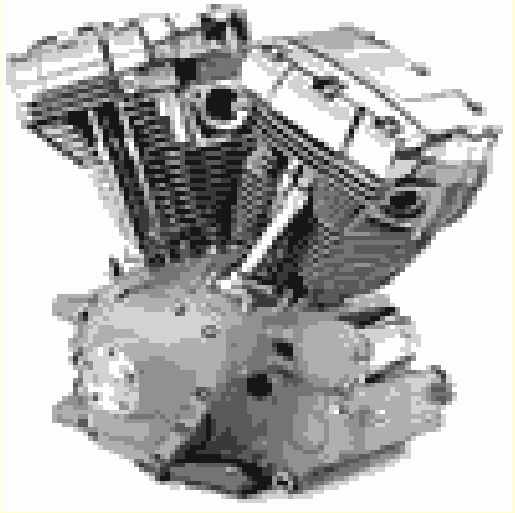

# Brakes



- **Check and adjust lever & pedal travel. Refer to your owners/shop manual for specs.**
- **Check master cylinders for <u>clean</u> brake fluid & proper fluid levels.**
- **Irregular or "jerky" stopping may mean a warped rotor or drum**
- **Inspect pads/liners and replace if needed. Don't let a front brake grab on wet pavement.**
- **<u>Brakes are possibly the most important component on a bike. Don't bet your life on worn brakes!</u>**

# *Tires & Wheels*

- **Inspect tires for even wear, tread depth and dry rot (cracking) or cuts in side walls.**
- **Inspect valve stems for dry rot (and rim cuts on tube stems).**
- **Check air pressure. Do not over inflate especially in *Hot* conditions/climate.**
- **Inspect rims for dents, cracks (alloy) and *Carefully* tighten loose spokes.**
- **Check axles, axle nuts & hardware for tightness & wear and lube the bearings.**
- **Inspect drive chain(& lube) or belt for excessive wear and adjust/replace as needed.**



# Engine & Transmission

- **Check spark plugs. Brown to grayish-tan is good. Black is probably from burning oil or a rich fuel/air mix., light gray or whitish can mean a lean fuel/air mix or an intake leak.**
- **Check carb(s), adjust float level(s) & idle/fuel/air. Clean carbs are happy carbs... Aerosol Carb/Injector cleaner can work wonders on carburetor or fuel injected motors.**
- **Inspect/adjust ignition components & replace old spark plugs & wires.**
- **About every 500 miles, check nuts, bolts & screws for tightness.**

# *Engine & Transmission, Cont.*

- **Inspect oil lines for leaks, cracks or chafe & look for oil leaks from the engine/trans. case(s).**
- **Inspect air filter(s) and if dirty, replace or clean depending on type.**
- **Inspect exhaust for leaks (especially at the manifold) and check mounting brackets.**
- **Adjust clutch, replace plates if slipping or dragging. Check primary drive chain/belt.**

# *Frame & Suspension*

- **Check/tighten/torque all nuts & bolts, & engine/trans. mounting hardware.**
- **Look for hair line cracks around engine/transmission mounting brackets.**
- **Check steering head/fork assembly for looseness/tightness and adjust if needed.**

# *Frame & Suspension*

- **Lube steering (tree) bearings.**
- **Check fork fluid level (refer to owners manual, use only approved hydraulic fluid).**
- **Inspect rear shock (s), (replace if worn or soft) and check fender mounting brackets/hardware.**
- **Inspect handle bars for cracks, check mounts and oil all cables**

# Highway Tool Kit & Spares

- Wrench set.
- Sockets with ratchet, extensions, U-swivel.
- Screw drivers.
- Pliers (needle nose, vice grip & slip joint).
- Crescent wrench.
- Hex wrenches.
- Small utility knife.
- Small hammer & punch.
- Hack saw blades.
- File.
- Thickness gauge.
- 12v test lamp.
- Fuses.
- Assorted nuts, bolts, cotter pins, etc.
- Chain mast. link & spare links.
- Spark plugs.
- Ign. points or module.
- Hose clamp.
- Bulbs.
- Spoke wrench.

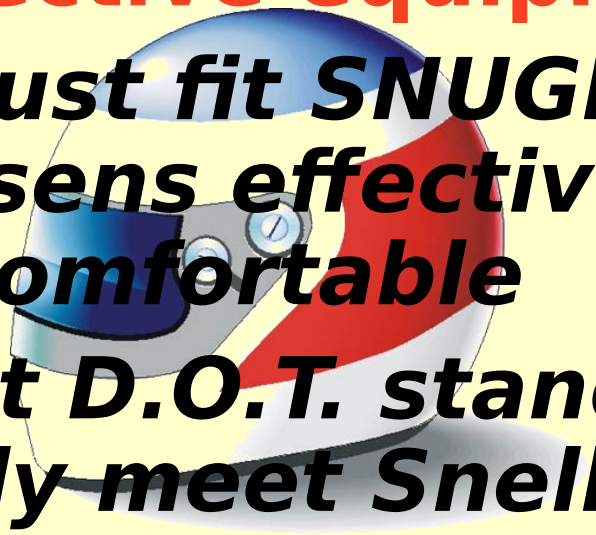
# *Highway Tool Kit & Spares, Cont.*

- **Elect. Tape.**
- **Elect. wire.**
- **1 Can Flat Fix.**
- **Flat tire plug kit.**
- **Sm. tube silicon/gasket maker.**
- **Picture (braided) wire.**
- **1 Qt. Oil.**
- **Shop rag.**
- **Small flash light.**
- **8'x10' poly plastic rain sheet.**
- **CELL PHONE...**
- **First-Aid Kit**

# Choosing Proper Protective Equipment

# HELMET

- **THE most important piece of your protective equipment**
- ***Helmet must fit SNUGLY…too loose, lessens effectiveness…too tight, uncomfortable***
- ***Must meet D.O.T. standards (preferably meet Snell 2000 standards)***



# *HELMET, Cont.*

- ***Helmets are MANDATORY, in Maryland, and for all military personnel, on or off base, regardless of the local laws.***
- ***Helmets are required by law to be properly fastened and secured using the attached straps***
- ***Don’t forget your eyes…half-helmet?  Eye protection!!!***

# *Protective Clothing*

- ***Best protection:  Leather***
- ***Better protection:  Polyester Mesh with Kevlar Armor Lining***
- ***Good protection:  Denim (blue jeans)***

# *Protective Clothing*

- ***Jacket and Pants or full-body riding suit***
- ***Full fingered motorcycle gloves***
- ***Over-the ankle, sturdy boots***
- ***Rain gear***
- ***Dress for the weather***

# *RIDER RESPONSIBILITY*

- ***Know the limits of your motorcycle***
- ***Know your riding limits***
- ***Know the limits of the environment you will be riding in***

- ***<u>RIDE WITHIN THESE LIMITS</u>***

# *Army Requirements*

- **References: AR 385-55 and DODI 6055.4**
- **ALL Army military personnel who operate a motorcycle (on-off duty, on-off a DOD installation and regardless of the member's decision to register their vehicle on a DOD installation) *ARE REQUIRED TO ATTEND OR TO HAVE ATTENDED AN APPROVED MOTORCYCLE RIDER SAFETY COURSE.***

# *Army Requirements*

- **Definition of “Army Military Personnel”:  All U.S. Military personnel on active duty; reserve or national guard on active duty or performing inactive duty training; service academy cadets; officer candidates in OCS; ROTC cadets when engaged in directed training activities; and foreign national military personnel assigned to the DOD components.**

# *Army Requirements*

- **All Army Civilian personnel who operate a motorcycle on duty (on-off a DOD installation, and regardless of the employee's decision to register their vehicle on a DOD installation) are required to attend or have attended an approved motorcycle rider safety course.**

# *Army Requirements*

- **Retirees, contractors, dependants, and all other non-Army civilian personnel who operate a motorcycle while on an Army installation are required to attend an approved motorcycle rider safety course.**

# *Army Requirements*

- **Approved Motorcycle Rider Safety Programs: Motorcycle Rider Course: Riding and Street Skills, or the new Basic Rider Course (BRC); Experienced Rider Course (ERC) (curriculum provided by the Motorcycle Safety Foundation, MSF)**

# MOTORCYCLE OPERATORS

# PREPARING TO RIDE

## Wear the Right Gear

- Helmet use
- Helmet selection
- Eye & face protection
- Clothing

## Know Your Motorcycle

- The right motorcycle
- Borrowing & lending
- Motorcycle controls - Familiarization

## Know Your Responsibilities

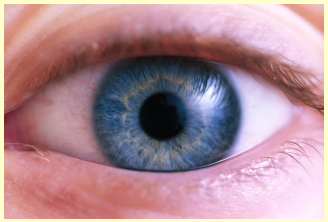
# RIDE WITHIN YOUR ABILITIES

## Basic Vehicle Control

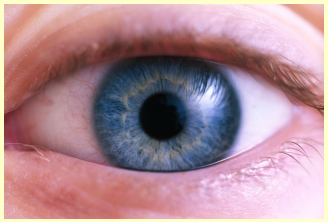
- Body position
- Shifting gears
- Braking
- Turning

## Keeping your distance

- Lane positions
- Following another vehicle
- Being followed
- Passing and being passed
- Lane sharing
- Merging cars
- Cars alongside



# SEE



**SEARCH – Ahead, sides and behind**

**EVALUATE – Think about hazards, anticipate potential problems**

**EXECUTE – Carry out your decision**

## Intersections

- Blind intersections
- Passing parked cars
- Parking at the roadside

## Increasing Conspicui

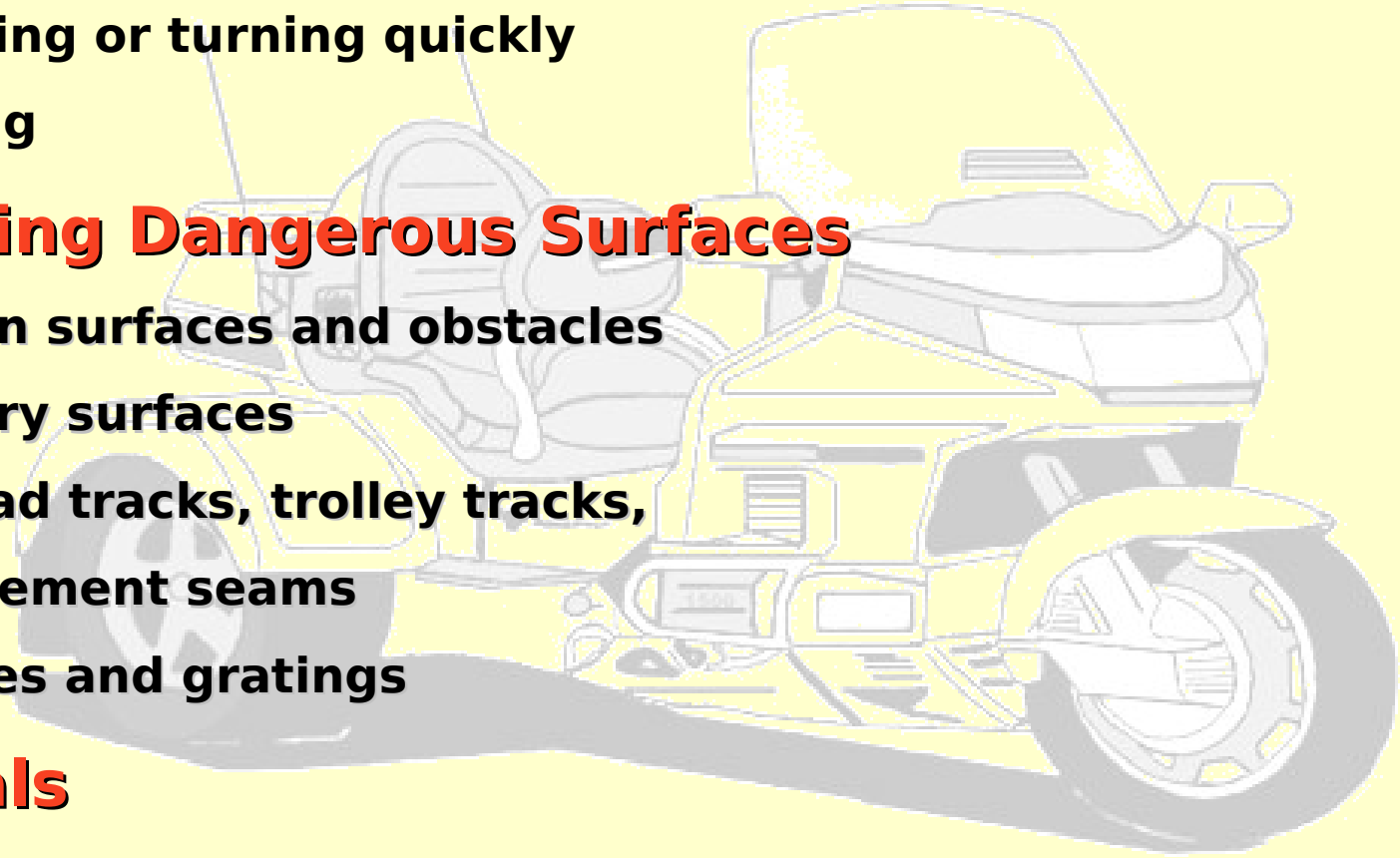
- Clothing
- Headlight
- Signals
- Brake light
- Use of mirrors
- Head checks
- Horn
- Riding @ night

## Crash Avoidance

- Quick stops
- Swerving or turning quickly
- Corning

## Handling Dangerous Surfaces

- Uneven surfaces and obstacles
- Slippery surfaces
- Railroad tracks, trolley tracks, and pavement seams
- Grooves and gratings



## Animals

## Flying Objects

## Getting Off The Road

## Carrying Passengers and Cargo

- Equipment
- Instructing passengers
- Riding with passengers
- Carrying loads

## Group Riding

- Keep the group small
- Keep the group together
- Keep your distance

# BEING IN SHAPE TO RIDE

## Alcohol & Drugs in Motorcycle Operation

- **Will effect your performance and your reaction time.**

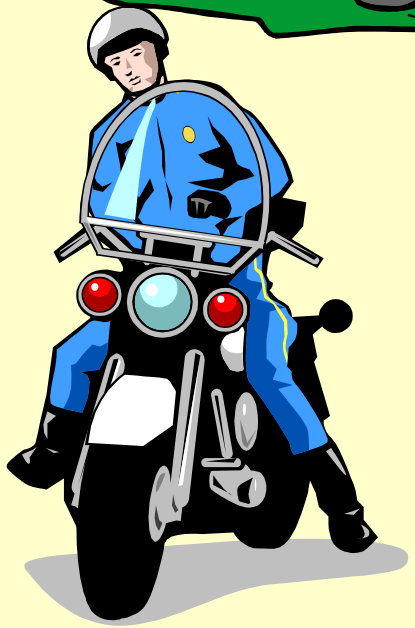
## Alcohol & The Law

- **DUI is the same on a motorcycle as an automobile. You will see jail time, and huge fines, pending you don't KILL yourself!**

## Minimize The Risk

## Step in to Help Friends

## Fatigue



# ATV Safety

# INJURY EXPERIENCE

**Fatal Injuries**

- One-third of all ATV-related fatalities from 1982 to 2002 were youth under 16 years.
- Central nervous system injuries accounted for 80% of fatalities in ATV-related crashes.
- From 1999 to 2001, there were 698 reported fatalities to folks ages 1-19 years from off-road vehicle crashes. Off-road vehicles include ATVs, snowmobiles, and hovercraft.
- There have been **11 soldier fatalities** from FY 01 to May 2007
- Helmets may reduce risk of death by 42%.

# Emergency Department (ED) Treated Injuries (Estimated

- Youth accounted for 37% of ATV-related injury from 1985 to 2002.
- From 2000 to 2002, over 103,400 were treated for ATV-related injuries.
- ATV operators under 16 years are nearly four times more likely than ATV operators over 16 years to experience an injury requiring emergency department treatment.
- From 1995 to 2003, 404,249 youth under 20 years were injured in ATV crashes and treated for nonfatal injuries in an ED.
- Males represent approximately three-quarters (77%) of ATV-related injuries treated in an ED from 1995 to 2003.
- Eleven percent of injured ATV operators seen in an ED are admitted to a hospital.
- Helmets may reduce the risk of nonfatal head injury by 64%.

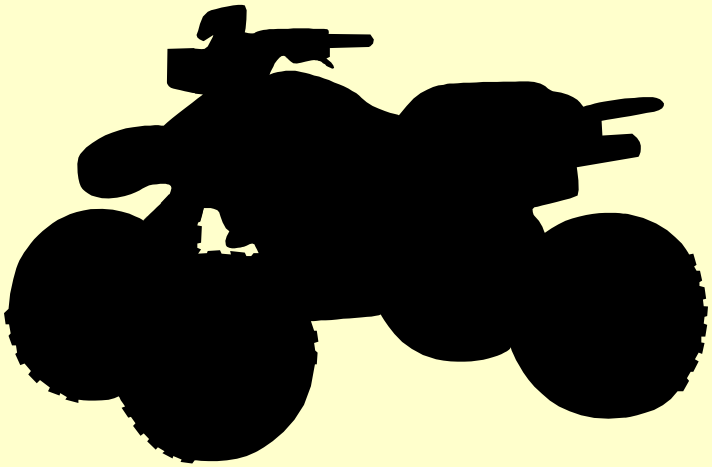
# Cost Data

Cost is calculated by estimating medical expenditure, work lost, and loss of quality of life.

- The average annual cost of nonfatal ATV-related injuries treated in an ED for youth under 20 years is over $1.4 billion.
- Hospital admitted ATV-related injuries to youth under 20 years cost over $5.2 million annually.
- Nearly 80% of the average annual cost of nonfatal ATV-related injuries are associated with males.

# BACKGROUND

- **All-terrain vehicles (ATVs) are motorized vehicles with over-sized, low-pressure tires, designed for uneven surfaces and off-highway work and recreation. ATV models can weigh up to 600 pounds1 and reach speeds up to 75 mph. Engine size ranges from 50cc to approximately 660cc. In the U.S. there is an estimated 7 million ATVs.**

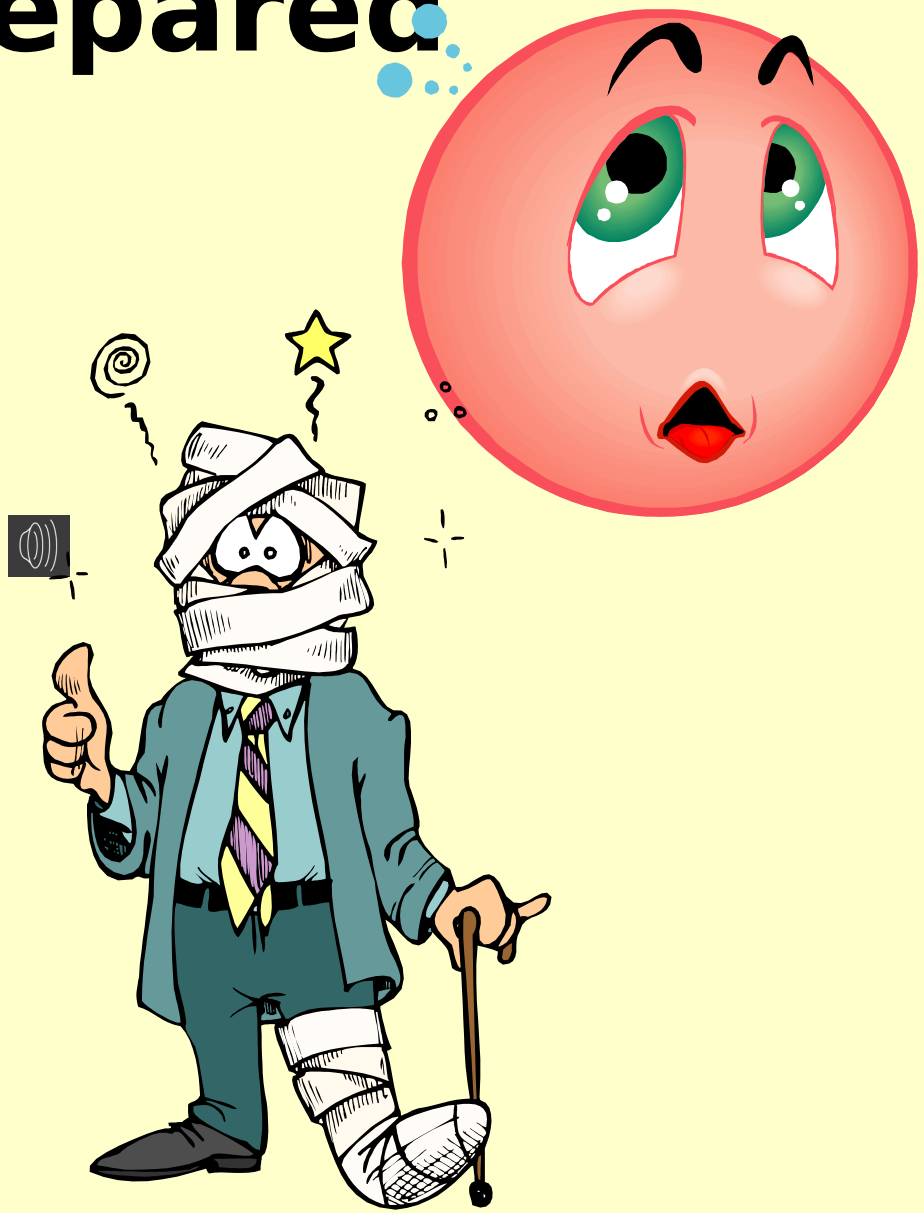


# The All-Terrain Vehicle (ATV)

- **Handling characteristics**
- **Front/rear brakes vs. linked brakes**
- **Electric, kick, and pull starters**
- **Liquid cooled vs. air cooled**
- **Transmissions – Auto clutch vs. hand clutch**
- **Some have reverse**
- **Solid drive axles vs. differentials**
- **2-wheel vs. 4-wheel drive**
- **Chain vs. shaft drive**
- **Throttle: thumb lever vs. handgrip**
- **Controls and their locations**

# Be Prepared

- **You may be anxious to take a test run, but be sure you are one with the machine. If not, the results range from embarrassment to severe injuries.**



# Protective Gear

- **Helmet**
- **Gloves - Padded**
- **Eye Protection – VESC8 or z87.1**
- **Boots**
- **Long Pants**
- **Long sleeved Shirt/Jacket**

# Pre-Ride Inspection

- Tires and Wheels
- Controls (Throttle, Brakes, Foot shifter)
- Lights & Switches
- Oil & Fuel
- Chain/Driveshaft and Chassis
- Tool Kit

# Prepare to Ride!

- **Riding Area**
- **Starting Procedure**
- **Posture**
- **Shifting Gears**
- **Braking**
- **Parking**

# Turning

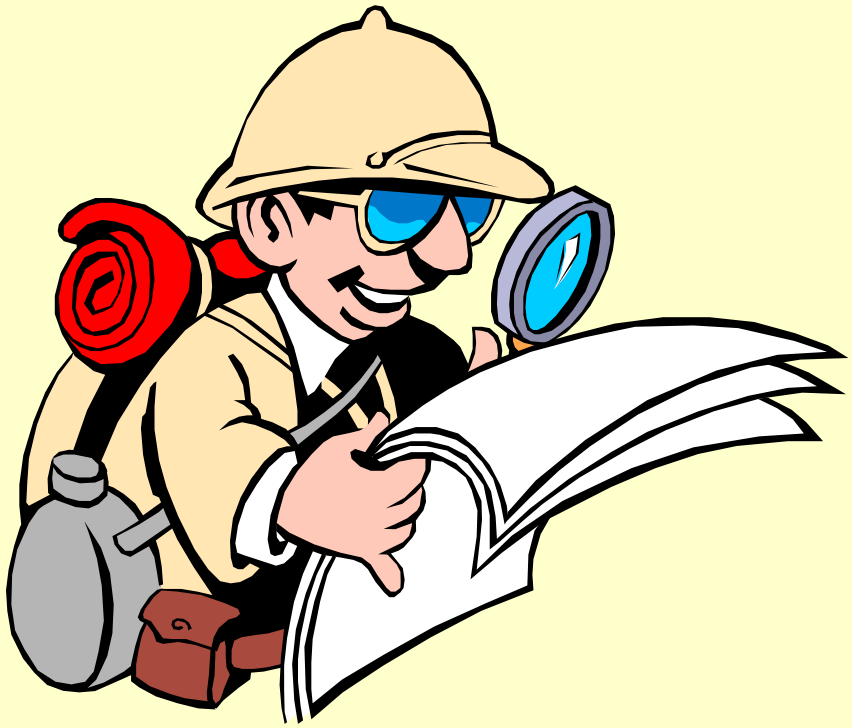
- **Move body weight forward and to inside of turn**
- **Turn handlebars while looking in the direction of the turn**

# Riding on Hills

- **If the hill looks too steep, it probably is!**
- **Never ride past limit of visibility**
- **Keep your weight uphill at all times**
- **Proceed downhill in lower gear, weight to uphill side**
- **Dismount on uphill side – Why?**
- **Traversing – Across a slope**

# Riding Strategies

- **Read the Terrain**
- **Choose Proper Speeds**



# Riding Different Terrain

- Sand Dunes
- Mud and Water
- Snow
- Crossing Roads and Highways

# Safe Riding Practices

- **Don’t Ride Alone**
- **Alcohol, Drugs, and Fatigue**
- **Know the Laws**
- **Registration**
- **You And The rest of The World**
- **Tread Lightly**

# ATV USE

**In 2001, 97% ATV-related injuries were operating ATVs larger than manufacturer's recommendations.**

**Personnel ATV use is prohibited on Fort Lee Military Installation.**

# ASSOCIATED FACTORS

Factors associated with ATV-related injuries

- No helmet use
- Poor judgment and risk-taking behaviors
- Male gender
- Operating an ATV larger than that recommended for their size and age
- Lack of physical size, strength, and coordination to operate an ATV
- Operating three-wheeled ATVs
- Increased driving exposure
- Operating on public roads, streets, and highways
- Riding with a passenger

Ride SAFE, Ride SMART!

# QUESTIONS?